Municipal Water Demand Management

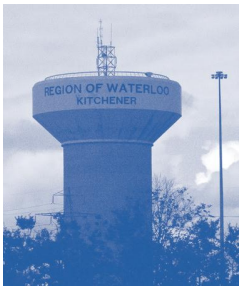
PRIMER 1 Securing Your Municipal Water Supply – For the Long-Term

P1

Grand River Watershed
Water Management Plan

What is long-term supply and Water Demand Management (WDM) planning?

Our water supply outlook in the Grand River watershed is changing. In some municipalities, populations are growing, peak demands are exceeding supply, existing water sources are reaching capacity and new sources are costly to identify and develop. In others, water uses and customer needs continue to evolve and diversify. Climate change adds a level of uncertainty to water supply plans for all municipalities in the watershed.



Long-term supply and water demand management planning is a way that each municipality can contribute to reducing pressures on the Grand River watershed while ensuring the long-term security of their municipal water supplies. It enables municipalities to adopt complementary policies, programs and technologies that improve water efficiency and change water use behaviour.

Ultimately, long-term planning means thinking past what needs to be done in the next five years to what needs to be done in the next 25 years and beyond.

Preparing for upcoming Provincial regulations

Planning now will help municipalities meet provincial water regulations that are coming down the pipe.

Mandatory requirements are soon to be released under the 2010 Ontario *Water Opportunities Act* that will require municipalities to engage in long-term water conservation planning and implementation. The *Water Opportunities Act* and regulations will be an opportunity for municipalities to improve their water use efficiency and operations, while supporting a sustainable water supply.

How will long-term planning benefit your Municipality?

Engaging in long-term planning for water has many potential benefits beyond ensuring long-term water supplies, including:

- Lower operating costs;
- Less stress on the system during peak demand times;
- Increased reliability and longevity of water supplies;
- Deferment of capital expenditure and supply schemes;
- Improved public perception of water utilities;
- Better understanding of full costs from water source to tap;
- Identification of potential triggers for water demand management (e.g. new capital works); and
- Opportunities to align WDM initiatives with other long-term municipal plans and systems (e.g. wastewater and stormwater) for better revenue forecasting and improved efficiencies.

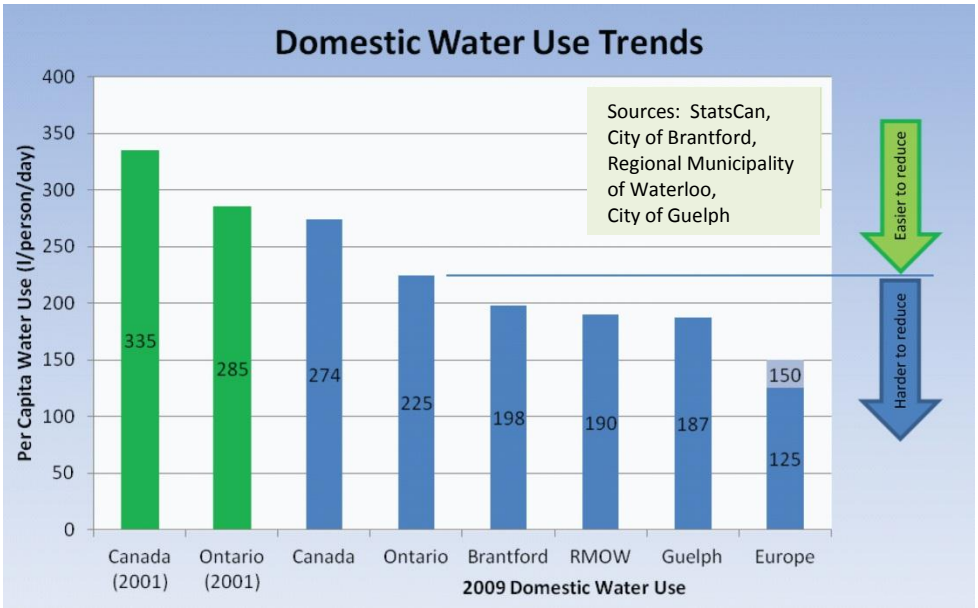
How does your Municipality fare in water consumption and conservation?

A key goal of water demand management initiatives is to decrease per capita consumption of water to achieve the benefits mentioned above.

In general, per capita water use has been declining in Canada, with many larger municipalities ahead of the trend. While this decline is positive, there is much more that can be done to catch up to European trends of 125 litres per person per day consumption.

The good news is that reducing per capita consumption to 225 litres per person per day (the 2009 Ontario

average) requires less effort than dropping below 225. Many municipalities are therefore in a position where lower-effort WDM initiatives – such as outdoor water use by-laws or leak detection – can provide big returns in water efficiency. Larger municipalities, in turn, can continue aggressive practices to get even closer to European consumption levels.



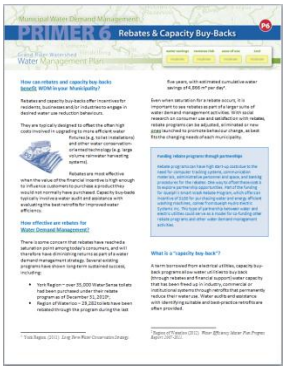
Reducing per capita consumption to 225 litres per person per day requires less effort than dropping below 225. Lower effort WDM initiatives can provide big returns.

Improving the Bottom Line: Water Demand Management = Energy Savings

In Ontario, energy required for pumping, treating and heating water and generating steam represents 40 per cent of Ontario's natural gas use and 12 per cent of electricity use*. Reducing the amount of water that needs to be pumped and heated in municipalities therefore has an added benefit: reduced energy costs. Many water demand management initiatives outlined in this Primer series effectively do "double-duty" – improving water efficiency while simultaneously contributing to energy savings. Recognizing the linkages between water and energy systems and use can add up to savings in both.

* *Ontario's Water Energy Nexus*. (2010). POLIS Research Report 10-01.

The WDM Primer Series



There can be many challenges in implementing water supply and demand management initiatives, despite the financial, social and environmental benefits they can bring.

This WDM Primer Series aims to help both small and large municipalities in the Grand River watershed overcome these challenges and choose appropriate WDM initiatives that will be the best fit and most effective in each community.

The Series includes details on specific WDM tools, innovative ideas and approaches, success stories and words of advice from municipal water managers across the Grand who have grappled with – and overcome – similar challenges.

WDM Primer Series: topics covered

The WDM Primer Series can be read in sequence or as stand-alone topics depending on the needs of your municipality.

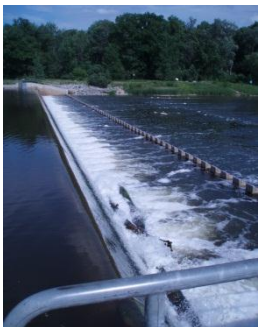
1. Securing Your Municipal Water Supply – For the Long Term
2. Easing the Flow – Getting Past WDM Barriers
3. Community Outreach
4. Water Metering
5. Outside Water Use By-Laws
6. Rebates and Capacity Buy-Backs
7. Water Loss Control
8. Conservation Pricing
9. New Technology and Next Generation WDM Strategies

Pushing Back Capital Projects: The Regional Municipality of Waterloo's Water Supply Master Plan

Population (2011): 507,906
Density: 370.4 people/km²
Water Supply: 75 per cent groundwater;
25 per cent surface water

The Regional Municipality of Waterloo has had a long history with water supply planning. The Region completed a Long Term Water Strategy in 1991, mapping out water supply options to 2041.

The Region's approach was documented in the 2000 Water Supply Master Plan (WSMP), which was updated in 2007 and is currently being reviewed again in 2012. The Plan includes measures such as water reduction targets under the Water Efficiency Master Plan, continuation of once-a-week lawn watering restrictions, and phased-in capital investment for increasing water supplies.



Mannheim intake, Grand River

The Region of Waterloo has shown that the implementation of their water demand management strategies has contributed to a decrease in water consumption even while their population is increasing. The major impact of the implemented WDM strategies, however, has been deferring the need for new water supply infrastructure – a $100 million capital work project – for another 10 years due to decreased demand.

Nancy Kodousek, Director of Water Services at the Region of Waterloo, noted that the successful development of the plan can be attributed to a commitment to a transparent, inclusive and environmentally-sensitive process that was supported by both the public and the Ministry of Environment.

With the challenge of changing population projections during the development of the plan, Kodousek advises to "always be aware of your context, water demand, and population, and keep doing a check to see if the Master Plan still meets the needs of the community."

While long-term planning can be challenging for small municipalities with fewer resources, Kodousek notes that it is possible, helped by defining specific focus areas (e.g. population, regulation and demand usage was the focus for the Region in 2007) and seeking outside support.

Resources:

- Water Efficiency: A Guidebook for Small and Medium-sized Municipalities in Canada. (2006). OWWA
- Water Conservation Planning Guide for British Columbia's Communities. (2010) POLIS Project: http://poliswaterproject.org/publication/243
- Water Efficiency Best Management Practices Manual (2005) Ontario Water Works Association.
- Water Conservation Tracking Tool. Alliance for Water Efficiency: http://www.allianceforwaterefficiency.org/Tracking-Tool.aspx
- Water Conservation Calculator. BC Ministry of Community & Rural Development: http://waterconservationcalculator.ca/

The Water Demand Management Primer series was developed in partnership with the following municipalities and partners:

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